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water soluble dyes;  
polar or ionic polymers; and  
polar or ionic dendrimers.

- 5            6.        A method of preparing water soluble particles comprising a coprecipitant core with a dehydrated biological macromolecule coated thereon comprising the steps of:
- a)        preparing an aqueous solution comprising a coprecipitant and a biological macromolecule;
  - b)        rapidly admixing the biological macromolecule/coprecipitant solution with  
10        an excess of a water miscible organic solvent such that the coprecipitant and bioactive molecule immediately coprecipitate from solution forming said particles; and
  - c)        isolating said particles from the organic solvent.
- 15            7.        The method according to claim 6 wherein the aqueous solution comprising the coprecipitant and the biological macromolecule is prepared by dissolving the coprecipitant in an aqueous solution comprising the biological macromolecule.
- 20            8.        The method according to either of claims 6 or 7 wherein the biological macromolecule/coprecipitant solution is added to the water miscible organic solvent.
- 25            9.        The method according to claim 6 wherein the coprecipitant:biological macromolecule molar ratio is greater than 50.

10. The method according to claim 6 wherein the coprecipitant is selected from
- inorganic salts;
  - sugars, polysaccharides, carbohydrates, polyols, and derivatives thereof, for example
  - 5 trehalose, with a molecular weight of less than 10,000 Da;
  - amino-acids;
  - acid-base buffers;
  - zwitterionic compounds;
  - organic salts;
  - 10 compounds containing multiple basic groups;
  - compounds containing multiple acidic groups;
  - bile salts;
  - water soluble dyes;
  - polar or ionic polymers; and
  - 15 polar or ionic dendrimers.

11. The method according to claim 6 wherein the organic solvent is selected from methanol, ethanol, propanol, acetonitrile tetrahydrofuran and acetone.

- 20 12. Particles obtainable by the process according to claim 6.

13. A pharmaceutical formulation comprising particles according to claims 1 or 12 and a suitable carrier therefore.

14. A medical device comprising particles according to claims 1 or 12  
associated therewith.

15. Particles according to claims 1 or 12 for use in therapy.

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16. A biocatalyst preparation comprising particles according to claims 1 or 12  
associated therewith.

17. A cleansing agent comprising enzyme coated particles according to claims  
1 or 12.

18. A protective or antifouling agent comprising particles according to claims  
1 or 12 in association with paint, varnish, coatings or films.

19. Films, polymers, inks, coatings, electrodes and optical materials for  
diagnostic kits or biosensor applications, comprising particles according to claims 1 or  
12.

20. A method for studying molecular recognition, molecular binding,  
molecular imprinting or inhibitor binding in non-aqueous media, comprising using  
particles according to claims 1 or 12.

21. A method for studying macromolecule structure and/or organisation by  
scanning probe microscopy, comprising using particles according to claims 1 or 12.

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22. A method of isolating a biological macromolecule from an aqueous solution, comprising the steps of:

a) preparing an aqueous solution comprising a mixture of a coprecipitant and biological macromolecule to be isolated; and

5 b) admixing the biological macromolecule/coprecipitant solution with an excess of a water miscible organic solvent such that the coprecipitant and biological macromolecule immediately coprecipitate from solution, with rapid simultaneous dehydration of the biological macromolecule.

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23. Water soluble particles of less than 50  $\mu\text{m}$  comprising a coprecipitant core with a dehydrated biological macromolecule coated thereon obtainable by:

a) preparing an aqueous solution comprising a coprecipitant and biological macromolecule; and

15 b) admixing the biological macromolecule/coprecipitant solution with an excess of a water miscible organic solvent such that the coprecipitant and biological macromolecule immediately coprecipitate from solution forming said particles; and

c) isolating said particles from the organic solvent.

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20 24. Biological macromolecule coated micro-crystals comprising a coprecipitant core with a dehydrated biological macromolecule coated thereon wherein the coprecipitant is selected from inorganic salts, sugars, polysaccharides, carbohydrates, polyols, and derivatives thereof, for example trehalose, with a molecular weight of less than 10,000 Da; amino-acids such as glycine and arginine;  
25 acid-base buffers;

zwitterionic compounds;

organic salts;

compounds containing multiple basic groups;

compounds containing multiple acidic groups;

5 bile salts;

water soluble dyes;

polar or ionic polymers; and

polar or ionic dendrimers.

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A pharmaceutical formulation comprising biological macromolecule

coated micro-crystals comprising a coprecipitant cover with a dehydrated

pharmaceutically active biological macromolecule coated thereon wherein the

coprecipitant is selected from inorganic salts,

sugars, polysaccharides, carbohydrates, polyols, and derivatives thereof, for example

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trehalose, with a molecular weight of less than 10,000 Da;

amino-acids such as glycine and arginine;

acid-base buffers;

zwitterionic compounds;

organic salts;

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compounds containing multiple basic groups;

compounds containing multiple acidic groups;

bile salts;

water soluble dyes;

polar or ionic polymers; and

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polar or ionic dendrimers; and a suitable carrier therefore.

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5                    27.      Water soluble particles of less than 50  $\mu\text{m}$  comprising a coprecipitant  
partially, substantially or crystalline core with a dehydrated biological macromolecule  
coated thereon.

29. Water soluble particles according to claim 28 wherein the coprecipitant  
15 has a molecular weight of less than 1,000 Da.

31. A liquid suspension comprising water soluble particles comprising a coprecipitant core coated with a biological macromolecule.

32. A method of purifying a biological macromolecule from additives or  
25 impurities comprising:

- a) dissolving a coprecipitant in an aqueous solution comprising the biological macromolecule and additive or impurity;
- b) admixing the biological macromolecule/coprecipitant solution with an excess of a water miscible organic solvent or solvents, in which the additive or impurity is soluble, such that the coprecipitant and biological macromolecule immediately coprecipitate from solution forming a biological macromolecule coated particle comprising a core of coprecipitant;
- c) rinsing said particles with fresh water-miscible organic solvent; and
- d) isolating said particles.